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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/954,662	09/12/2001	Ronald A. Wahler	19930-003600US	7565

20350 7590 06/16/2004

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EXAMINER

NGUYEN, CHAU M

ART UNIT	PAPER NUMBER
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2633

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DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/954,662

Applicant(s)

WAHLER ET AL.

Examiner

Chau M Nguyen

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 13-21, 28, 29, 33 and 34 is/are rejected.
- 7) ☒ Claim(s) 7-12, 22-27 and 30-32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 28, 29, 33 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiragaki et al. (Hereinafter "Shiragaki") (U.S. Pat. No. 6,657,952 B1).

As claims 1 and 4, Shiragaki discloses a method for operating an optical ring, the optical ring including a plurality of nodes (see fig. 1), the method comprising:

propagating a plurality of optical signal pairs (such as pair $\lambda_1 \lambda_3$ and pair $\lambda_2 \lambda_4$, see fig. 8) over a plurality of wavelength connections between the nodes (such as Node A and Node B), wherein each such optical signal pair includes a first signal having a first wavelength λ_1 and a second signal having a second wavelength λ_3 that differs from λ_1 , and wherein at at least one of the plurality of nodes the first signal (λ_1) acts as a transmit signal (referred to node A, fig. 8) and the second signal (λ_3) acts as a receive signal (col. 11, lines 10-19); and

redirecting at least one of the optical signal pairs over a protection path (such as path 102) in response to a failure in the optical ring, wherein the protection path propagates signals with respect to the at least one of the plurality of nodes without changing the wavelengths of the transmit and receive signals (col. 11, line 20-26).

As claims 2 and 3, Shiragaki discloses the method to be applied for both bi-directional and unidirectional signal (col. 14, lines 29-32).

As claims 5 and 6, each node of Shiragaki comprises two switches (sub-elements) (denoted by 501 and 502, fig. 8), and configured to transmit the first signal and receive the second signal respectively.

As claims 28, 29, 33 and 34, Shiragaki discloses a system for operating a wavelength division multiplexing network comprising an optical ring of nodes interconnected by a plurality of wavelength connections (col. 1, lines 8-12), the system comprising:

a management unit (manager) (col. 8, lines 62-67) configured to select pairs of wavelengths from a set of N discrete wavelengths ordered sequentially by wavelength from λ_1 to λ_N , the pairs of wavelengths defining a plurality of optical signal pairs comprising a first signal having a first wavelength λ_a and a second signal having a second wavelength λ_b that differs from λ_a (col. 11, lines 10-19);

a controlling circuit (controller) (col. 3, lines 48-56) coupled with the manager and the optical ring, wherein the controller is configured to propagate at least one of the plurality of optical signal pairs along a normal traffic path within the optical ring such that at at least one of the nodes the first signal acts as a transmit signal and the second signal acts as a receive signal; and

switching circuit (col. 11, lines 10-19) redirect the at least one of the optical signal pairs over a protection traffic path in response to a failure in the optical ring without changing the wavelengths of the transmit and receive signals (col. 11, line 20-26).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13 - 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiragaki (U.S. Pat. No. 6,657,952 B1) as applied in the claim 1, in view of Au (U.S. Pat. No. 6,473,397 B1).

As claim 13, Shiragaki does not clearly show redirecting at least one of the optical signal pairs over a protection path comprising head-end switching. However, Au shows an ATM switch (denoted by 50, see Au, fig. 6), for switching (head-end switching) signal to protection path (Au, col. 8, lines 53-59). Therefore, it would have been obvious to one having ordinary skill in the art to apply a switching method (by ATM switch) as taught by Au into the method of Shiragaki in order to re-route signal to protection path in the event of failure at next path or node. One would have motivated for doing this to provide increased flexibility and capacity. (Au, col. 4, lines 56-60).

As claims 14 and 15, Au discloses the failures comprising connection failure and node failure. (Au, col. 1, lines 35-36).

5. Claims 16 – 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beine (U.S. par. No. 6,701,087 B2) in view of Shiragaki (U.S. Pat. No. 6,657,952 B1).

As claims 16 and 19, Beine discloses an optical ring comprising:
a plurality of nodes (such as 202, 204, ...see fig. 3) (col. 4, lines 43-44), with a network element disposed at each such node (detailed in fig. 6, col. 11, lines 26-30);
a plurality of optical wavelength connections between the nodes configured for the propagation of optical signals (col. 4, lines 44-47); and
a network administrator (controller) (832, fig. 8) (col. 13, lines 28-30) coupled with the plurality of nodes, wherein the controller (associated with 834) (col. 15, lines 36-38) responds to a failure in the optical ring by redirecting at least one of the optical signal pairs over a protection path without changing the wavelengths of the transmit and receive signals (col. 12, lines 65-67).

Beine differs from the present invention in that, Beine does not clearly show the network is configured to propagate a plurality of optical signal pairs, each such optical signal pair including a first signal having a first wavelength λ_a and a second signal having a second wavelength λ_b that differs from λ_b , such that at at least one of the plurality of nodes the first signal acts as a transmit signal and the second signal acts as a receive signal, and redirecting at least one of the optical signal pairs over a protection path without changing the wavelengths of the transmit and receive signals.

However, Shiragaki discloses the system being used to propagate a plurality of optical signal pairs, each such optical signal pair including a first signal having a first wavelength λ_a and a second signal having a second wavelength λ_b that differs from λ_a , such that at at least one of the plurality of nodes the first signal acts as a transmit signal and the second signal acts as a receive signal, and redirecting at least one of the optical signal pairs over a protection path without changing the wavelengths of the transmit and receive signals (Shiragaki, col. 11, lines 3-7 and line 10-26).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to apply the teaching of Shiragaki, on the selecting a pair of signal with different wavelength to communicate between two nodes such that at at least one of the plurality of nodes the first signal acts as a transmit signal and the second signal acts as a receive signal, into the optical ring system of Beine in order to create a system with high quality. One would have motivated for doing this since without changing the wavelength, the arrangement eliminates the need to use wavelength converters (Shiragaki, col. 11, lines 6-9).

As claims 17 and 18, the combination system of Beine and Shiragaki could be used for bi-directional and unidirectional (Shiragaki, col. 14, lines 29-32).

As claim 20 and 21, the combination system of Beine and Shiragaki in that, Shiragaki show each node comprising two switches (sub-elements) (denoted by 501 and 502, fig. 8), and configured to transmit the first signal and receive the second signal respectively.

Allowable Subject Matter

6. Claims 7-12, 22-27 and 30-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ellinas et al. (U.S. Pat. No. 5,999,288) is cited to show connection set-up and path assignment in WDM ring networks.

Fishman (U.S. Pat. No. 5,982,517) is cited to show method and system for service restoration in optical fiber communication networks.

Duerksen et al. (U.S. Pat. No. 6,438,286 B1) is cited to show protection switching in bi-directional WDM optical communication networks with transponders.

Duerksen et al. (U.S. Pat. No. 6,321,004 B1) is cited to show protection switching in bi-directional WDM optical communication networks with transponders.

Buabbud et al. (U.S. Pub. No. 2002/0186439) is cited to show WDM ring passive optical network with route protection.

Li (U.S. Pub. No. 2002/0018616) is cited to show optical channel shared protection ring.

Li et al. (U.S. Pub. No. 2003/0025956) is cited to show protected DWDM ring networks using wavelength selected switches.

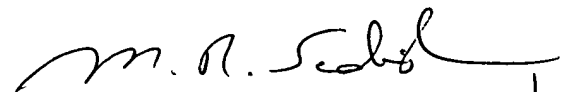
Arecco et al (U.S. Pub. No. 2002/0003639) is cited to show auto-protected optical communication ring network.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau M. Nguyen whose telephone number is 703-305-8965. The examiner can normally be reached on Mon-Fri from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4726. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

C.M.N.
Jun. 10, 2004


M.R. SEDI GHIAN
Primary Examiner
Art Unit: 2633